

CLAIMS

1. A method of performing a communication between a sender terminal and a recipient terminal in response to a communication request from the sender terminal using a recipient identifier for uniquely specifying a recipient, the method comprising:

creating an identifier-for-disclosure based on communication condition information for informing communication conditions to a recipient at a time of performing the communication and the recipient identifier;

10 restoring, when a communication request from the sender terminal based on the identifier-for-disclosure created is received, the recipient identifier and the communication condition information from the identifier-for-disclosure; and

establishing, when the communication conditions included in the communication condition information restored are satisfied, the communication between the sender terminal and the recipient terminal according to the communication request.

2. The method according to claim 1, wherein

20 the creating includes creating an address-for-disclosure based on delivery condition information indicating delivery conditions for a mail delivered to the recipient terminal and a recipient address uniformly specifying a recipient,

the restoring includes restoring, when a mail having the address-for-disclosure created as a destination address is received,

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restoring the recipient address and the delivery condition information from the address-for-disclosure serving as the destination address of the mail, and

the establishing includes, when the delivery conditions included
5 in the delivery condition information restored are satisfied, sending the mail to the recipient terminal.

3. The method according to claim 1, wherein

the creating includes creating a
10 telephone-number-for-disclosure based on call condition information for connecting a call to a recipient telephone and a recipient telephone number,

the restoring includes, when a call connection request based on the telephone-number-for-disclosure created is received, restoring the
15 recipient telephone number and the call condition information from the telephone-number-for-disclosure included in the call connection request, and

the establishing includes, when call conditions included in the call condition information restored are satisfied, connecting the sender
20 telephone and the recipient telephone for a call.

4. The method according to any one of claims 1 to 3, wherein the creating includes creating the identifier-for-disclosure in the recipient terminal based on the communication condition information and the
25 recipient identifier.

5. The method according to any one of claims 1 to 3, wherein the creating includes creating the identifier-for-disclosure in a predetermined intermediary apparatus that is capable of communicating with the recipient terminal, based on the communication condition information and the recipient identifier.

6. The method according to any one of claims 1 to 5, further comprising notifying including a relay system provided between the recipient terminal and the sender terminal notifying the recipient terminal of at least one of the recipient identifier and the restored communication condition information restored.

7. The method according to any one of claims 1 to 6, further comprising determining including a relay system provided between the recipient terminal and the sender terminal determining processing contents at a time when the communication conditions included in the communication condition information restored are not satisfied.

8. The method according to any one of claims 1 to 6, further comprising determining includes the recipient terminal determining processing contents at a time when the communication conditions included in the communication condition information restored are not satisfied.

9. The method according to any one of claims 1 to 8, wherein the communication condition information includes sender limiting information for limiting a sender to whom the identifier-for-disclosure created is disclosed, and

5 the establishing includes, when it is determined that at least a sender who makes the communication request coincides with limitation conditions included in the sender limiting information, establishing the communication between the sender terminal and the recipient terminal according to the communication request.

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10. The method according to any one of claims 1 to 8, wherein the communication condition information includes disclosure-destination specifying information for specifying a disclosure destination to which the identifier-for-disclosure created is disclosed.

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11. The method according to any one of claims 1 to 10, wherein the establishing includes, when the communication conditions included in the communication condition information restored are not satisfied, rejecting the communication request.

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12. The method according to any one of claims 1 to 10, wherein the establishing includes, when the communication conditions included in the communication condition information restored are not satisfied, establishing a communication between a predetermined communication

25 terminal that is different from the recipient terminal and the sender

terminal regardless of the communication request.

13. The method according to claim 5, further comprising registering the recipient identifier of each of the recipients and the communication
5 condition information indicating communication conditions at a time of performing the communication with the recipient terminal in the intermediary apparatus, wherein

the creating includes, when a disclosure request for the identifier-for-disclosure is received from the sender terminal, creating
10 the identifier-for-disclosure based on the recipient identifier and the communication condition information registered in the intermediary apparatus.

14. The method according to claim 13, further comprising:
15 determining whether a sender who makes the disclosure request for the identifier-for-disclosure has a qualification for making the disclosure request; and
rejecting, when it is determined that the sender does not have the qualification, the communication request.

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15. The method according to claim 5, further comprising:
generating a preliminary identifier-for-disclosure based on preliminary communication condition information indicating preliminary communication conditions at a time of performing the communication
25 with the recipient terminal, and the recipient identifier; and

registering the preliminary identifier-for-disclosure generated in
the intermediary apparatus, wherein

the creating includes

transmitting, when the disclosure request for the
5 identifier-for-disclosure is received from the sender terminal, the
preliminary identifier-for-disclosure and the communication condition
information registered in the intermediary apparatus to an
identifier-for-disclosure rewriting apparatus to make a request to rewrite
the identifier-for-disclosure; and

10 creating the identifier-for-disclosure from the preliminary
identifier-for-disclosure and the communication condition information in
response to the request at the transmitting.

16. The method according to claim 15, further comprising:

15 determining whether the intermediary apparatus has a
qualification for making the request based on the preliminary
identifier-for-disclosure; and

rejecting, when it is determined that the intermediary apparatus
does not have the qualification, the request.

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17. The method according to any one of claims 1 to 16, wherein
the creating includes creating the identifier-for-disclosure by
encrypting the recipient identifier and the communication condition
information using a predetermined public key, and

25 the restoring includes, when the communication based on the

identifier-for-disclosure created is received, restoring the recipient identifier and the communication condition information by decrypting the identifier-for-disclosure using a secret key corresponding to the public key.

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18. The method according to any one of claims 1 to 16, wherein the creating includes creating the identifier-for-disclosure by encrypting the recipient identifier and the communication condition information using a predetermined common key, and

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the restoring includes, when the communication based on the identifier-for-disclosure created is received, restoring the recipient identifier and the communication condition information by decrypting the identifier-for-disclosure using the common key.

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19. The method according to any one of claims 1 to 16, wherein the creating includes creating the identifier-for-disclosure by encrypting the recipient identifier and the communication condition information using a predetermined common key, and

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the restoring includes, when the communication based on the identifier-for-disclosure created is received, restoring the recipient identifier and the communication condition information by decrypting the identifier-for-disclosure using the common key.

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20. The method according to any one of claims 1 to 19, wherein the creating includes, when the identifier-for-disclosure is created based on

the communication condition information and the recipient identifier, including the communication condition information in the identifier-for-disclosure in such a manner that a third party cannot manipulate the communication condition information.

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21. The method according to any one of claims 1 to 20, wherein the communication condition information includes a type or a combination of the communication conditions, and the restoring includes

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extracting the type or the combination of the communication conditions from the identifier-for-disclosure created; and restoring the recipient identifier and the communication condition information from the identifier-for-disclosure according to the type and the combination of the communication conditions extracted.

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22. A communication system that connects a recipient terminal used by a recipient and a sender terminal that sends a communication request to the recipient terminal via a relay system, and performs a communication between the sender terminal and the recipient terminal in response to a communication request from the sender terminal using a recipient identifier for uniquely specifying the recipient, the communication system comprising an identifier-for-disclosure granting unit including

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an identifier-for-disclosure creating unit that creates an identifier-for-disclosure based on communication condition information

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indicating communication conditions at a time of performing the communication with the recipient terminal and the recipient identifier; and

5 a notifying unit that notifies the identifier-for-disclosure created to the sender terminal, wherein

the relay system includes

a restoring unit that, when a communication request from the sender terminal based on the identifier-for-disclosure granted by the identifier-for-disclosure granting unit is received, restores the recipient identifier and the communication condition information from
10 the identifier-for-disclosure; and

a communication establishing unit that, when the communication conditions included in the communication condition information restored are satisfied, establishes the communication
15 between the sender terminal and the recipient terminal according to the communication request.

23. The communication system according to claim 22, wherein the identifier-for-disclosure granting unit is a part of the recipient terminal.
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24. The communication system according to claim 22, wherein the identifier-for-disclosure granting unit is an intermediary apparatus different from both the recipient terminal and the relay system.

25 25. A relay system that is provided between a recipient terminal

used by a recipient and a sender terminal that sends a communication request to the recipient terminal, and relays a communication between the sender terminal and the recipient terminal in response to a communication request from the sender terminal using a recipient
5 identifier for uniquely specifying the recipient, the relay system comprising:

a restoring unit that, when a communication request from the sender terminal based on communication condition information indicating communication conditions at a time of performing the
10 communication with the recipient terminal and a recipient identifier is received, restores the recipient identifier and the communication condition information from the identifier-for-disclosure; and
a communication establishing unit that, when the communication conditions included in the communication condition
15 information restored are satisfied, establishes the communication between the sender terminal and the recipient terminal according to the communication request.

26. A communication program for performing a communication
20 between a sender terminal and a recipient terminal in response to a communication request from the sender terminal using a recipient identifier for uniquely specifying a recipient, the communication program causing a computer to execute:

creating an identifier-for-disclosure based on communication
25 condition information for informing communication conditions to a

recipient at a time of performing the communication and the recipient identifier;

restoring, when a communication request from the sender terminal based on the identifier-for-disclosure created is received, the
5 recipient identifier and the communication condition information from the identifier-for-disclosure; and

establishing, when the communication conditions included in the communication condition information restored are satisfied, the communication between the sender terminal and the recipient terminal
10 according to the communication request.

27. A program for a relay system that is provided between a recipient terminal used by a recipient and a sender terminal that sends a communication request to the recipient terminal, and relays a
15 communication between the sender terminal and the recipient terminal in response to a communication request from the sender terminal using a recipient identifier for uniquely specifying the recipient, the program causing a computer to execute:

restoring, when a communication request from the sender
20 terminal based on communication condition information indicating communication conditions at a time of performing the communication with the recipient terminal and a recipient identifier is received, the recipient identifier and the communication condition information from the identifier-for-disclosure; and

25 establishing, when the communication conditions included in the

communication condition information restored are satisfied, the communication between the sender terminal and the recipient terminal according to the communication request.

5 28. A mail delivery system that connects a recipient terminal used by a recipient having a recipient address with a sender terminal that sends a mail having the recipient address as a destination via a network, and delivers the mail to the recipient terminal, the mail delivery system comprising:

10 an address-for-disclosure issuing unit that issues an address-for-disclosure based on delivery condition information indicating delivery conditions for the mail to be delivered to the recipient and the recipient address; and

 a mail transfer unit that, when the mail is received, decrypts the
15 recipient address, extracts the delivery condition information from the address-for-disclosure, and when the mail satisfies the delivery conditions included in the delivery condition information extracted, changes the destination of the mail from the address-for-disclosure to the recipient address restored to transfer the mail.

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29. The mail delivery system according to claim 28, wherein the address-for-disclosure issuing unit includes

 a receiving unit that receives the delivery condition information and the recipient address;

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 an address-for-disclosure creating unit that encrypts the

delivery condition information and the recipient address received to create an address-for-disclosure; and

an address-for-disclosure returning unit that returns the address-for-disclosure created to the recipient terminal, and

5 the mail transfer unit includes

a filter processing unit that, when the mail is received, decrypts the address-for-disclosure to restore the recipient address, extract the delivery condition information, and extracts the mail satisfying the delivery conditions included in the delivery condition

10 information extracted; and

a transfer processing unit that changes the destination of the mail extracted from the address-for-disclosure to the recipient address restored to transfer the mail.

15 30. The mail delivery system according to claim 29, wherein the address-for-disclosure issuing unit further includes an encryption-key table in which a plurality of encryption keys are registered,

the address-for-disclosure creating unit encrypts the delivery
20 condition information and the recipient address received using a predetermined encryption key registered in the encryption-key table to create an address-for-disclosure,

the mail transfer unit further includes a decryption-key table in which a plurality of decryption keys corresponding to each of the
25 encryption keys registered in the encryption-key table are registered,

and

the filter processing unit extracts a decryption key corresponding to the predetermined encryption key from the decryption-key table, decrypts the address-for-disclosure using the decryption key extracted to restore the recipient address and to extract the delivery condition information.

31. The mail delivery system according to claim 30, wherein the address-for-disclosure creating unit adds, when a length of data to be encrypted using the predetermined encryption key registered in the encryption-key table is less than a predetermined length, a random number to satisfy the predetermined length.

32. The mail delivery system according to claim 30 or 31, wherein the encryption keys are registered in the encryption-key table in association with a plurality of key identifiers, respectively,

the address-for-disclosure creating unit includes a key identifier of an encryption key that is used in encrypting the delivery condition information and the recipient address in the address-for-disclosure, and the filter processing unit extracts a decryption key having the key identifier that is extracted from the address-for-disclosure from the decryption-key table, and decrypts the address-for-disclosure using the decryption key extracted to restore the recipient address and to extract the delivery condition information.

33. The mail delivery system according to any one of claims 30 to 32, wherein the encryption-key table and the decryption-key table are identical tables in which the key identifiers are registered in association with a plurality of common keys, respectively.

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34. The mail delivery system according to any one of claims 30 to 32, wherein

a plurality of public keys is registered in the encryption-key table in association with the key identifiers, respectively, and

10 a plurality of secret keys corresponding to the public keys registered in the encryption-key table is registered in the decryption-key table in association with same key identifiers, respectively.

15 35. The mail delivery system according to any one of claims 29 to 34, wherein the address-for-disclosure creating unit sets a sender address for using a communication to the address-for-disclosure, a sender domain for using a communication to the address-for-disclosure, an expiration date of the address-for-disclosure or a starting date of a
20 validity of the address-for-disclosure, or a combination of the conditions as the delivery condition information.

36. The mail delivery system according to any one of claims 28 to 35, wherein the address-for-disclosure creating unit includes a type and
25 a combination of designated delivery conditions in the

address-for-disclosure.

37. The mail delivery system according to claim 35 or 36, wherein
the address-for-disclosure creating unit includes, when the sender
5 address or the sender domain is set as the delivery condition
information, all or a part of hash values of the sender address or the
sender domain in the address-for-disclosure.

38. The mail delivery system according to any one of claims 29 to
10 37, wherein

the address-for-disclosure issuing unit further includes a
random-number sequence table that stores a plurality of
random-number sequences, and

the address-for-disclosure creating unit performs a reversible
15 conversion processing of a part of information to be encrypted, using a
random-number sequence extracted from the random-number
sequence table.

39. The mail delivery system according to claim 38, wherein the
20 address-for-disclosure creating unit determines a random number to be
extracted from the random-number sequence table, based on a part of
information used for creating the address-for-disclosure.

40. The mail delivery system according to claim 38 or 39, wherein
25 the address-for-disclosure creating unit selects a random-number

sequence from the random-number sequence table based on the delivery condition information, and performs a reversible conversion processing of the recipient address using the random-number sequence selected.

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41. The mail delivery system according to any one of claims 29 to 40, wherein

each of the address-for-disclosure issuing unit and the mail transfer unit further includes an address table that stores a recipient
10 address in association with a predetermined address identifier,

the address-for-disclosure creating unit encrypts the address identifier stored in the address table corresponding to the recipient address and the delivery condition information to create the address-for-disclosure,

15 the filter processing unit decrypts, when the mail having the address-for-disclosure as a destination is received, the address-for-disclosure to restore the address identifier, extracts the delivery condition information, and extracts a mail satisfying the delivery conditions included in the delivery condition information
20 extracted, and

the transfer processing unit changes the destination of the mail to the recipient address stored in the address table corresponding to the address identifier restored from the address-for-disclosure to transfer the mail.

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42. A method of delivering a mail having a predetermined recipient address as a destination from a sender terminal that sends the mail to a recipient terminal used by a recipient having the recipient address, the method comprising:

- 5 issuing an address-for-disclosure based on deliver condition information indicating delivery conditions for the mail to be delivered to the recipient and the recipient address;
 - restoring including, when the mail is received,
 - restoring the recipient address; and
 - 10 extracting the delivery condition information from the address-for-disclosure; and
 - changing, when the mail satisfies the delivery conditions included in the delivery condition information extracted, the destination of the mail from the address-for-disclosure to the recipient address
 - 15 restored to transfer the mail.

43. The method according to claim 42, wherein the issuing includes
- receiving the delivery condition information indicating
 - 20 delivery conditions for the mail to be delivered to the recipient and the recipient address;
 - creating the address-for-disclosure by encrypting the delivery condition information and the recipient address received; and
 - returning the address-for-disclosure created to the
 - 25 recipient terminal, and

the changing includes

decrypting, when the mail is received, the
address-for-disclosure to restore the recipient address, extract the
delivery condition information, and extract the mail satisfying the
5 delivery conditions included in the delivery condition information
extracted; and

changing the address of the mail extracted from the
address-for-disclosure to the recipient address restored to transfer the
mail.

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44. The method according to claim 43, wherein
the creating includes encrypting the delivery condition
information and the recipient address received using an encryption key
having a predetermined key identifier registered in an encryption-key
15 table to create the address-for-disclosure, and

the decrypting includes extracting a decryption key having the
predetermined key identifier from a decryption-key table and decrypting
the address-for-disclosure using the decryption key extracted to restore
the recipient address and extract the delivery condition information.

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45. The method according to claim 43 or 44, wherein, the creating
includes setting a sender address for using the address-for-disclosure,
a sender domain for using the address-for-disclosure, an expiration
date of the address-for-disclosure or a starting date of a validity of the
25 address-for-disclosure, or a combination of the conditions as the

delivery condition information.

46. The method according to claim 45, wherein, the creating includes including a type and a combination of designated delivery
5 conditions in the address-for-disclosure.

47. The method according to any one of claims 42 to 46, further comprising storing each of the recipient addresses in an address table in association with a predetermined address identifier, wherein
10 the creating includes encrypting an address identifier stored in the address table corresponding to the recipient address and the delivery condition information to create the address-for-disclosure,
the decrypting includes, when the mail is received, decrypting the address-for-disclosure to restore the address identifier, extracting
15 the delivery condition information, and extracting a mail satisfying the delivery conditions included in the delivery condition information extracted, and
the changing includes changing the destination of the mail from the address-for-disclosure to the recipient address stored in the
20 address table corresponding to the address identifier restored to transfer the mail.

48. A mail delivery program for delivering a mail having a predetermined recipient address as a destination from a sender
25 terminal that sends the mail to a recipient terminal used by a recipient

having the recipient address, the mail delivery program causing a computer to execute:

- issuing an address-for-disclosure based on deliver condition information indicating delivery conditions for the mail to be delivered to
5 the recipient and the recipient address;
 - restoring including, when the mail is received,
 - restoring the recipient address; and
 - extracting the delivery condition information from the address-for-disclosure; and
 - 10 changing, when the mail satisfies the delivery conditions included in the delivery condition information extracted, the destination of the mail from the address-for-disclosure to the recipient address restored to transfer the mail.

- 15 49. The mail delivery program according to claim 48, wherein the issuing includes

- receiving the delivery condition information indicating delivery conditions for the mail to be delivered to the recipient and the recipient address;
- 20 creating the address-for-disclosure by encrypting the delivery condition information and the recipient address received; and
- returning the address-for-disclosure created to the recipient terminal, and
- the changing includes
- 25 decrypting, when the mail is received, the

address-for-disclosure to restore the recipient address, extract the delivery condition information, and extract the mail satisfying the delivery conditions included in the delivery condition information extracted; and

5 changing the address of the mail extracted from the address-for-disclosure to the recipient address restored to transfer the mail.

50. The mail delivery program according to claim 49, wherein
10 the creating includes encrypting the delivery condition information and the recipient address received using an encryption key having a predetermined key identifier registered in an encryption-key table to create the address-for-disclosure, and

 the decrypting includes extracting a decryption key having the
15 predetermined key identifier from a decryption-key table and decrypting the address-for-disclosure using the decryption key extracted to restore the recipient address and extract the delivery condition information.

51. The mail delivery program according to claim 49 or 50, wherein,
20 the creating includes setting a sender address for using the address-for-disclosure, a sender domain for using the address-for-disclosure, an expiration date of the address-for-disclosure or a starting date of a validity of the address-for-disclosure, or a combination of the conditions as the delivery condition information.

52. The mail delivery program according to claim 51, wherein, the creating includes including a type and a combination of designated delivery conditions in the address-for-disclosure.

- 5 53. The mail delivery program according to any one of claims 49 to 52, further causing the computer to execute storing each of the recipient addresses in an address table in association with a predetermined address identifier, wherein

the creating includes encrypting an address identifier stored in
10 the address table corresponding to the recipient address and the delivery condition information to create the address-for-disclosure,

the decrypting includes, when the mail is received, decrypting the address-for-disclosure to restore the address identifier, extracting the delivery condition information, and extracting a mail satisfying the
15 delivery conditions included in the delivery condition information extracted, and

the changing includes changing the destination of the mail from the address-for-disclosure to the recipient address stored in the address table corresponding to the address identifier restored to
20 transfer the mail.